

REMARKS

In response to the Office action dated October 28, 2008, Applicants respectfully request reconsideration based on the above amendments and the following remarks. Applicants respectfully submit that the claims as presented are in condition for allowance.

Claims 1-5, 7-10, 13-15, 18-22 and 26-33 are pending in the present Application. Claims 1 and 27 are currently amended. Support for the amendments to claims 1 and 27 may be found throughout the specification and figures as originally filed. Claims 6, 11, 12, 16, 17 and 23-25 have been previously cancelled, leaving claims 1-5, 7-10, 13-15, 18-22 and 26-34 for further consideration.

Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

Claim Rejections Under 35 U.S.C. § 112

Claims 1 and 14 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to be fully enabled by the specification as filed. Specifically, in the previous Office action the Examiner stated, “the specification, while being enabling for transmitting signals to gate lines 121 and data lines 171, does not reasonably provide enablement for testing. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to test the invention commensurate in scope with these claims.” The Examiner further stated, “the shorting bar 320 connects to all the first and second driving signal wires 521/522 and data leads 520; therefore the testing signals with different voltages transmitting[sic] through the first and second driving signal wires 521/522 and data leads 520 from outside will be short-circuit[sic] with a same electrical potential on the shorting bar and cannot be able to operate the LCD device”.

In the present Office action, the Examiner states, “[t]he independent claim 1 cites ‘a first driving signal wire 153b transmitting driving signals from an outside of the display panel to the first display signal lines ...’ and the independent[sic] claim 14 ‘shorting bar 320 connected the first driving signal wire.’” The Examiner then questions, “[h]ow do driving signals transmit with the shorting bar 320? The LCD cannot operate with shorting bar.”

In response, Applicants respectfully draw the Examiner’s attention to independent claims 1 and 27. Claims 1 and 27 are directed towards apparatus, specifically, liquid crystal display

("LCD") devices. Claims 1 and 27 include several structural limitations including an LCD panel, a first driving signal wire and a plurality of first connecting lines. The shorting bar, which the Examiner alleges renders the apparatus inoperable, is not claimed in independent claims 1 and 27. The specification as filed clearly provides support for making and using the apparatus as claimed in independent claims 1 and 27, therefore, independent claims 1 and 27 are fully enabled by the specification as filed.

Claim 14 is dependent upon independent claim 1 and claim 30 is dependent upon independent claim 27. Claims 14 and 30 include structural limitations including a shorting bar connected to the first driving signal wire. As discussed in detail in lines 19-24 of page 11 of the application as filed, a shorting bar may be formed adjacent to an upper edge of the panel assembly and extending in the longitudinal direction to connect to the gate driving signal lines 521-524 and the data lines for protection of the switching elements Q for electrostatic discharge protection of the switching elements during manufacture. Also as discussed in the abovementioned section of the specification, the shorting bar may be eliminated by edge grinding along a cutting line after completion of the panel assembly. (See also FIGS. 3A, B and 6). Applicants herein reproduce the entire section for emphasis:

A shorting bar 320 formed adjacent to the upper edge of the panel assembly 300 and extending in the longitudinal direction is connected to the gate driving signal lines 521-524 and the data lines for protection of the switching elements Q for electrostatic discharge protection of the switching elements Q. This shorting bar 320 is eliminated by edge grinding along a cutting line EG after completion of the panel assembly 300. (See page 11, lines 19-24 of the specification as filed).

Therefore, before the visual inspection ("VI") test, the gate driving signal lines and data lines are disconnected from the shorting bar by edge grinding, and then a test voltage is applied to the pad 139 of the gate driving signal line. The test voltage is not short-circuited across the shorting bar due to its removal prior to testing. Therefore, there is no problem in driving the LCD of the present application, as alleged by the Examiner.

First, one of ordinary skill in the art would understand that the shorting bar may be removed after completion of the panel assembly and before testing. Therefore, one of ordinary skill in the art would be able to make and use the apparatus as claimed in dependent claims 14 and 30.

Secondly, in order to more clearly point out and distinctly claim the present invention, Applicants have amended independent claims 1 and 27 to include a limitation wherein the first driving signal wire is for transmitting driving signals from an outside of the display (and in claim 27, the driving signal wire is for transmitting a first test signal). This should eliminate any confusion as to whether the first driving signal wire is shorted with the shorting bar when transmitting driving signals therealong. In direct response to the Examiner's question, "[h]ow do driving signals transmit with the shorting bar 320?" Applicants submit that the driving signals are not transmitted when the shorting bar is present, and yet the driving signal wire may still be for transmitting the driving signals, e.g., after the shorting bar is removed as described in detail above.

Thus, the LCD claimed in independent claims 1 and 27 is fully operable and the LCD with the addition of the shorting bar is operable and has utility, namely it prevents short circuits during manufacturing before it's eventual removal. Therefore claims 1 and 27 and their dependent claims 14 and 30 are fully enabled. One of ordinary skill in the art would be able to make and/or use the invention as claimed in light of the figures and detailed description as originally filed.

In light of the above remarks it is respectfully requested that the Examiner reconsider the rejection of claims 1, 14, 27 and 30 under 35 U.S.C. §112.

Claim Rejections Under 35 U.S.C. §102

In order to anticipate a claim under 35 U.S.C. §102, a single source must contain all of the elements of the claim. *Lewmar Marine v. Barient, Inc.*, 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766, 1768 (Fed. Cir. 1987), *cert denied*, 484 U.S. 1007 (1988). Moreover, the single source must disclose all of the claimed elements "arranged as in the claim." *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 716, 223 U.S.P.Q. 1264, 1274 (Fed. Cir. 1984). Missing elements may not be supplied by the knowledge of one skilled in the art or the disclosure of another reference. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 780, 227 U.S.P.Q. 773, 777 (Fed. Cir. 1985).

Claims 1, 7-10, 13, 15, 18-22, 26-29 and 31-33

Claims 1, 7-10, 13, 15, 18-22, 26-29 and 31-33 stand rejected under 35 U.S.C. 102(b) as being allegedly anticipated by Nagata et al. (U.S. Patent No. 6,172,410, hereinafter "Nagata"). Applicants respectfully traverse.

Nagata is directed to a collective substrate of active-matrix substrates, a manufacturing method thereof and an inspection method thereof. The collective substrate is divided into a first block and a second block. Cells of the first block and second block form a corresponding signal input pad group wherein an inspection scanning signal is input via a scanning-line short ring connection line to the scanning lines, and an inspection display signal is input via a signal-line short ring connecting line to signal lines, and an auxiliary capacity wire signal is input via an auxiliary capacity wire main wire connecting line to auxiliary capacity wires. (See Abstract and FIG. 17).

Nagata does not disclose: **a first driving signal wire transmitting driving signals from an outside of the display panel to the first display signal lines, wherein the first driving signal wire is separated from the first and second display signal wires, the switching elements, and the pixel electrodes, and includes a first pad connected thereto at a first end thereof, and a second pad connected thereto at a second end thereof** as claimed in amended independent claim 1 of the present invention.

The Examiner states that the inspection scanning line 153b of Nagata is equivalent to the first driving signal wire as claimed and that the gate lines 2 of Nagata are equivalent to the first display signal lines as claimed. (See pages 4 and 5 of the present Office action, including the Examiner supplied FIG. 17). Nagata however, only discloses a first connecting pad (represented by the ovoid shape in FIG. 17) connected to a first end of the inspection scanning line 153b.

On page 21 of the present Office action, the Examiner provides another marked-up copy of FIG. 17 from Nagata. In this marked-up copy of FIG. 17, the Examiner indicates that the connecting pad on inspection scanning signal line 153a is equivalent to the second pad as claimed. The Examiner himself marks line 153b as equivalent to the first driving signal wire as claimed, and then labels line 153a as equivalent to the second driving signal wire as claimed. Thus, the second pad is not connected to the first driving signal wire as claimed, but is instead connected to a second driving signal wire. Rather than showing a single signal wire with two

pads as claimed in the present invention, Nagata shows two signal lines, each having a single connecting pad.

Thus, claim 1 is believed to be patentably distinct and not anticipated by Nagata. Claims 7-10, 13, 15, 18, 19 and 26 depend directly from claim 1, and thus include all the limitations of claim 1. It is thus believed that the dependent claims are allowable for at least the reasons given for independent claim 1, which is believed to be allowable.

Nagata does not disclose: **a first driving signal line configured to transmit driving signals from an outside of the display panel to the gate driver and also configured to transmit a first test signal via a plurality of first connecting lines to at least one of the plurality of gate lines** as claimed in independent claim 27 of the present invention.

The inspection scanning line 153b of Nagata, which the Examiner alleges is equivalent to the claimed first driving signal line, does not transmit a driving signal from an outside of the display panel to a gate driver, illustrated as 160b. Instead, the inspection scanning line 153b transmits only a test signal to the plurality of gate lines 2. Applicants also respectfully draw the Examiner's attention to column 2, lines 40-54 of Nagata, wherein the gate driver is illustrated as 160b and the data driver is illustrated as 160a.

The Examiner states on page 21 of the present Office action that Nagata discloses a driving signal line 153b transmitting driving signals from an outside of the display panel to the gate driver. However, there is no support in Nagata that a driving signal is supplied to the gate driver 160b by the either the first driving signal wire 153b or the second driving signal wire 153a. Instead, Nagata only discloses the driving signal wires 153a and 153b transmit test signals to the gate lines 2. The gate driver 160b receives driving signals from an outside from the three contacts shown in the lower left hand corner of FIG. 17.

Thus, claim 27 is believed to be patentably distinct and not anticipated by Nagata. Claims 28, 29 and 31 depend directly from claim 27, and thus include all the limitations of claim 27. It is thus believed that the dependent claims are allowable for at least the reasons given for independent claim 27, which is believed to be allowable.

Nagata does not disclose: **wherein each connecting line is disposed between, and connected to, the driving signal line and the at least one of the plurality of gate lines, and**

the driving signal line and the connecting lines are disposed at substantially the same cross-sectional height from the substrate as claimed in independent claim 32 of the present invention.

There is no disclosure that the inspection scanning lines 153 of Nagata, which the Examiner alleges are equivalent to the claimed first driving signal lines, are disposed at the same cross-sectional height from the substrate as the gate lines 2, which the Examiner alleges are equivalent to the connecting lines as claimed. While the Applicants thank the Examiner for the helpful comment "SAME HEIGHT" which has been provided on the marked-up version of FIG. 17 on page 21 of the present Office action, Applicants respectfully point out that this marking by the Examiner is not supported by any disclosure in Nagata. FIG. 17 is a schematic plan view incapable of intrinsically showing the respective cross-sectional heights of the components above the substrate. Applicants submit that while the inspection scanning signal line 153b and the first display signal lines 2, which the Examiner alleges are equivalent to the connecting lines as claimed, are disposed on the substrate, there is no disclosure that they are disposed at the same cross-sectional height from the substrate. The fact that the lines are shown as being electrically connected is not dispositive of their being disposed at the same height; rather they may be electrically connected through a through-hole, or by a bridging structure; the schematic and plan view nature of FIG. 17 prevents the conclusion that the lines are at the same cross-sectional height.

Thus, claim 32 is believed to be patentably distinct and not anticipated by Nagata.

Nagata does not disclose: **a driving signal line configured to transmit driving signals from an outside of the display panel to at least one of the plurality of data lines and the data driver; and a plurality of connecting lines, each connecting line being disposed between, and connected to, the driving signal line and at least one of the plurality of data lines** as claimed in independent claim 33 of the present invention.

The Examiner states on page 22 of the present Office action that Nagata discloses driving signal lines 153a-c transmitting driving signals from an outside of the display panel to a data driver. However, there is no support in Nagata that a driving signal is supplied to the data driver 160a by either the any of the inspection display signal lines 152a-c (or, although not specifically alleged by the Examiner, by inspection display signal lines 153a-b). Instead, Nagata

only discloses the inspection display signal lines transmit test signals to second display signal lines 3. The data driver 160a receives driving signals from an outside from the four contacts shown in the lower middle section of FIG. 17.

On page 21 of the present Office action, the Examiner appears to indicate that the four contacts shown in the lower middle section of FIG. 17 as “1st driving signal wire” in addition to the signal lines 153a and 153b being labeled as “first driving signal wire”. Clearly, these two sections of wiring are separate and distinct, and neither section of wiring meets the above limitations of the driving signal line as claimed. Furthermore, the signal lines 153a and 153b connect to gate lines whereas the four contacts shown in the lower middle section of FIG. 17 and labeled as “1st driving signal wires” by the Examiner connect to a data driver. Therefore, the alleged “1st driving signal wire” as indicated by the Examiner is electrically isolated from the other “first driving signal wire” as indicated by the Examiner, and these sections of wiring can not meet the above claim limitations.

Thus, claim 33 is believed to be patentably distinct and not anticipated by Nagata.

To summarize, independent claims 1, 27, 32 and 33 are believed to be patentably distinct and not anticipated by Nagata. Claims 7-10, 13, 15, 18-22 and 26 depend from amended independent claim 1, and thus include all of the limitations of claim 1. Claims 28, 29 and 31 depend from amended independent claim 27, and thus include all of the limitations of claim 27. It is thus believed that the dependent claims are allowable for at least the reasons given for independent claims 1 and 27, which are believed to be allowable.

Accordingly, Applicants respectfully request reconsideration and allowance of claims 1, 7-10, 13, 15, 18-22, 26-29 and 31-33 in view of Nagata.

Claims 1-5, 7-10, 13, 15, 18-22, 26-29 and 31-33

Claims 1-5, 7-10, 13, 15, 18-22, 26-29 and 31-33 stand rejected under 35 U.S.C. 102(e) as being allegedly anticipated by Kim et al. (U.S. Patent No. 6,636,288, hereinafter “Kim”). Applicants respectfully traverse.

Kim is directed to a liquid crystal display including gate signal interconnection wires formed at a corner portion of a substrate and outside the display area to transmit gate electrical signals, and provided with gate signal interconnection lines and first and second gate signal

interconnection pads connected to both ends of the gate signal interconnection lines. (See Abstract and FIG. 1).

Kim does not disclose: **a first driving signal wire transmitting driving signals from an outside of the display panel to the first display signal lines, wherein the first driving signal wire is separated from the first and second display signal wires, the switching elements, and the pixel electrodes, and includes a first pad connected thereto at a first end thereof, and a second pad connected thereto at a second end thereof** as claimed in amended independent claim 1 of the present invention.

The Examiner states the gate signal interconnection wires 134 of Kim are equivalent to the first driving signal wires as claimed. The Examiner also states that the pads C4 are connected to the gate signal interconnection wires 134 at near ends thereof. While the gate signal interconnection wires 134 do include pads C4 (and also C3, C5 and C6), the pads are not disposed at a first end thereof and a second end thereof as claimed.

On page 23 of the present Office action the Examiner provides a marked-up version of FIG. 1 from Kim, wherein the Examiner indicates that pads C4 are equivalent to “first and second pads at first and second ends” of the gate signal interconnection wires 134. Contrary to the Examiner’s assertion, the pads C4 are each disposed on only one gate signal interconnection wire 134. Therefore, each gate signal interconnection wire receives only one of the pads C4, not a first and second pad, as claimed in the present invention. Furthermore, Kim does not disclose the existence of a pad of any kind at a second end of the gate signal interconnection wires 134 opposite a first end thereof.

Thus, claim 1 is believed to be patentably distinct and not anticipated by Kim. Claims 2-5, 7-10, 13, 15, 18, 19, 20-22 and 26 depend from claim 1, and thus include all the limitations of claim 1. It is thus believed that the dependent claims are allowable for at least the reasons given for independent claim 1, which is believed to be allowable.

Kim does not disclose: **a first driving signal line configured to transmit driving signals from an outside of the display panel to the gate driver and also configured to transmit a first test signal via a plurality of first connecting lines to at least one of the plurality of gate lines** as claimed in independent claim 27 of the present invention.

The gate signal interconnection wires 134, which the Examiner alleges are equivalent to the first driving signal line as claimed, do not transmit a first test signal via a plurality of first connecting lines to at least one of the plurality of gate lines. (See FIG. 1). The gate signal interconnection lines 134 only transmit signals to the various gate driving IC chips 122, 140, etc. The gate signal interconnection lines 134 do not transmit test signals via first connecting lines to the gate lines.

Thus, claim 27 is believed to be patentably distinct and not anticipated by Kim. Claims 28, 29 and 31 depend directly from claim 27, and thus include all the limitations of claim 27. It is thus believed that the dependent claims are allowable for at least the reasons given for independent claim 27, which is believed to be allowable.

Kim does not disclose: **wherein each connecting line is disposed between, and connected to, the driving signal line and the at least one of the plurality of gate lines, and the driving signal line and the connecting lines are disposed at substantially the same cross-sectional height from the substrate** as claimed in independent claim 32 of the present invention.

There is no disclosure that the gate signal interconnection wires 134, which the Examiner alleges are equivalent to the first driving signal line as claimed, are disposed at the same cross-sectional height from the substrate as the portion of the signal lines disposed between the chip 122 and the contact C1, which the Examiner alleges are equivalent to the connecting lines as claimed.

While the Applicants thank the Examiner for the helpful comment "first and second ends have same height" which has been provided on the marked-up version of FIG. 1 on page 23 of the present Office action, Applicants respectfully point out that this marking by the Examiner is not supported by any disclosure in Kim. FIG. 1 is a plan view incapable of intrinsically showing the respective heights of the components above the substrate. Applicants submit that while the gate signal interconnection wires 134 and the portion of the signal lines disposed between the chip 122 and the contact C1, which the Examiner alleges are equivalent to the connecting lines as claimed, are disposed on the substrate, there is no disclosure that they are disposed at the same cross-sectional height from the substrate. The plan view nature of FIG. 1 prevents the conclusion that the lines are at the same cross-sectional height.

Thus, claim 32 is believed to be patentably distinct and not anticipated by Kim.

Kim does not disclose: **a driving signal line configured to transmit driving signals from an outside of the display panel to at least one of the plurality of data lines and the data driver; and a plurality of connecting lines, each connecting line being disposed between, and connected to, the driving signal line and at least one of the plurality of data lines** as claimed in independent claim 33 of the present invention.

The data signal lines 114, which the Examiner alleges in the marked-up version of FIG. 1 on page 24 of the present Office action is equivalent to the driving signal line as claimed, does not transmit driving signals from an outside of the display panel to at least one of the data lines and the data driver. Instead, the data signal lines 114 transmit data signals from the data driving IC 130 to the data lines 61. The data signal lines 114 in no way transmit data signals from an outside to the data driver 130; rather they transmit data signals from the data driver 130 to the data lines 61.

Thus, claim 33 is believed to be patentably distinct and not anticipated by Kim.

To summarize, independent claims 1, 27, 32 and 33 are believed to be patentably distinct and not anticipated by Kim. Claims 2-5, 7-10, 13, 15, 18-22 and 26 depend from amended independent claim 1, and thus include all of the limitations of claim 1. Claims 28, 29 and 31 depend from amended independent claim 27, and thus include all of the limitations of claim 27. It is thus believed that the dependent claims are allowable for at least the reasons given for independent claims 1 and 27, which are believed to be allowable.

Accordingly, Applicants respectfully request reconsideration and allowance of claims 1-5, 7-10, 13, 15, 18-22, 26-29 and 31-33 in view of Kim.

Rejections Under 35 U.S.C. § 103

In order for an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all of the elements of the invention are disclosed in the prior art, and that the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. See MPEP 2143.

Claim 30

Claim 30 stands rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Nagata or Kim in view of Nishiki et al. (U.S. Patent No. 6,111,620, hereinafter “Nishiki”). The Examiner states that Nagata or Kim discloses all of the elements of claim 30 except, *a liquid crystal device comprising a shorting bar intersecting the data lines and the first driving signal line, wherein the shorting bar is configured to be removed by edge grinding along a cutting line*, which the Examiner further states is disclosed primarily in FIG. 1 of Nishiki. Applicants respectfully

First, Applicants respectfully note that the subject matter of Kim is commonly owned by the Applicants of the present application and that Kim is believed to qualify as prior art only under subsection (e) of 35 U.S.C. §102. The subject matter of Kim and the claimed invention were, at the time the claimed invention was made, subject to an obligation of assignment to the same person, namely the Applicants. Therefore, it is believed that the subject matter of Kim does not preclude patentability under 35 U.S.C. §103.

As mentioned above for amended claim 1, Nagata and Kim do not disclose, teach or suggest: **a first driving signal wire transmitting driving signals from an outside of the display panel to the first display signal lines, wherein the first driving signal wire is separated from the first and second display signal wires, the switching elements, and the pixel electrodes, and includes a first pad connected thereto at a first end thereof, and a second pad connected thereto at a second end thereof** as claimed in amended independent claim 1 of the present invention.

The alleged teaching of a shorting bar of Nishiki fails to cure the defects of Nagata and Kim noted above with respect to claim 27, namely, Nishiki does not disclose, teach or suggest: **a first driving signal line configured to transmit driving signals from an outside of the display panel to the gate driver and also configured to transmit a first test signal via a plurality of first connecting lines to at least one of the plurality of gate lines** as claimed in independent claim 27 of the present invention

Applicants submit that Nagata and Kim, either alone or in combination with Nishiki, do not render obvious the subject matter of claim 27. Claim 30 depends from claim 27, and thus includes the allowable elements of claim 27. It is thus believed that the dependent claims are patentable over the cited references for at least the reasons given above for independent claim 27.

Accordingly, it is respectfully submitted that the claimed invention is allowable over the cited references. The Examiner's reconsideration and withdrawal of the rejection of claim 30, and the subsequent allowance of the same, is respectfully requested.

Conclusion

All of the objections and rejections are herein overcome. In view of the foregoing, it is respectfully submitted that the instant application is in condition for allowance. No new matter is added by way of the present Amendments and Remarks, as support is found throughout the original filed specification, claims and drawings. Prompt issuance of Notice of Allowance is respectfully requested.

The Examiner is invited to contact Applicant's attorney at the below listed phone number regarding this response or otherwise concerning the present application.

Applicant hereby petitions for any necessary extension of time required under 37 C.F.R. 1.136(a) or 1.136(b) which may be required for entry and consideration of the present Reply.

If there are any charges due with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Applicant's attorneys.

Respectfully submitted,

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